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NOTES ON TROPICAL FRUITS.

BY W. T. BRIGHAM.

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Cocos nucifera, Cocoanut. To attempt to give a bare enumeration of the qualities of this most useful of the noble family of Palms would be a difficult task, and there is a saying among Eastern nations that its attributes would fill a book. Although its strict territory is bounded by the tropics, and although a denizen of the sea-shore, it will grow as far north as Lucknow, in India ($26^{\circ} 50' N.$), and is planted far in the interior of that peninsula; but in the one case it does not bear fruit, in the other is dwarfed and languishes. From its littoral position, its buoyant and well-protected nuts have been driven by winds and currents all over the tropical seas, and almost as soon as the atoll changes from a mere reef to an island, the cocoanut lands on the shores.

The tall unbranching stem, often attaining the height of ninety-feet, with a diameter at the base of three feet, and at the crown a foot, is a most attractive object. The scars of the fallen leaf-stalks, more and more distinct as they approach the top, show clearly the way in which the stem has grown, starting almost at the commencement of life with its full diameter, and throwing off crop after crop of leaves as it grows in height. The leaves are usually twelve or fifteen in number, often fourteen feet long, and cluster around the cap. As a new leaf comes out, it is covered with a brown fibrous sheath, which is soon split through by the sharp end of the leaf. At first the leaflets are folded closely upon the central rib, so closely that they seem a part of the smooth, bright green blade. The midrib is now quite short, much like the midrib of our common palm-leaf fans, and if we could crumple one of these dried leaves up, we should have much the plan of the young cocoanut leaf. If the blades

should now expand the leaf would be palmate ; but it goes on lengthening the axis and becomes pinnate, showing a higher order of development. Five or six leaves are unfolded every year, and as many wither and fall off. When young the leaves are quite tender, but when fully expanded, become very stiff and hard.

The axillary spathe opens always on the under side and soon falls off, leaving a spicate spadix bearing the female flowers near the base ; as in most palms the blossom is beautiful from the great number of the flowers, rather than from any individual grace. In favorable places each stem will bear from five to fifteen nuts, and a mature tree may have eight or ten, or even twelve of these stems, one blossoming every four or five weeks ; so that a tree will produce from eighty to a hundred nuts annually. They ripen in succession, so that blossoms and fruit are seen at once.

As the fruit comes to us its glory is gone. It is in its best condition just before ripeness, or when the shell is soft enough to be cut with a knife ; then the interior is filled with a rich clear milk, always cool when just gathered, and the shell is coated with a gelatinous cream almost transparent, and so soft as to be eaten with a spoon. When fully ripe, the inner crust has hardened, and absorbed the better part of the milk, leaving an insipid water. The milk is quite nutritious, and many medicinal effects have been attributed to it. I have drank nothing else for several days, without perceiving any unfavorable result. It is perhaps with more reason regarded as a cure for sea-sickness. Carefully picked with a portion of the stem attached, they may be carried for three weeks at sea uninjured, perhaps longer, so that we might be supplied with fresh nuts from the West Indies.

A cocoanut is always planted with the three black spots, which are seen at one end, upwards. From one of these the stem rises, and the shell is soon split. Often the nut does not begin to germinate for six months, or even a year after

planting, and it grows slowly for the first two years of its life. In favorable situations the tree begins to bear when six years old, and continues until seventy years, or even longer.

It is said that the palm loves the company of man, and grows best near his habitation, and well may man return the love, for it furnishes him with all the necessities, and many of the luxuries of life, requiring no cultivation or care. The wood is hard in old trees, and very ornamental, and is used for timber. The rootlets are eaten, or rather chewed as tobacco: the young leaves are boiled and eaten as cabbage; when they are older they furnish a good surface to write on with a sharp point (cow-dung is usually rubbed in to make the characters more visible), and also to thatch houses, fence gardens, make baskets, mat-beds, fish-nets, fans, sieves, and hats; when old and dry, the stout midrib is used for clubs, paddles, rafters, fence posts; the ribs of the leaflets for brushes, torches, or the whole is burned to furnish potash. The husk of the nut is stripped off by means of a small stake fixed in the ground, and a man can strip a thousand nuts per diem, and the husks are then soaked for several months in water to separate the fibre, and finally twisted into rope, or woven into mats under the name of coir. This rope is very strong and light, does not rot when wet, and floats on the water. Forty nuts usually yield six pounds of coir. The undressed fibre of the husk is a capital polishing material, and sailors use nuts split in halves to rub down decks.

Before the spathe opens it is often tapped, and a clear juice runs out which is fermented to form toddy, or boiled down to make jaggery, or palm sugar. This tapping is supposed to injure the tree if long continued.

The ripe nut is cooked and eaten in various ways. When grated it is an ingredient of the best curries; mixed with sweet potato, or kalo, and baked, it forms a fine pudding. The Pacific islanders chew up the meat and rub it into their

hair as a pomatum, and whether owing to this application or not, their hair is exceedingly abundant and black.

The oil is, perhaps, one of the most valuable products. The Micronesians break up the nuts, and expose the meat to the heat of the sun in covered troughs, wetting the mass constantly. Fermentation takes place and the oil drops out into containers. The East Indian process is almost as rude, the nuts being ground in a wooden or stone mill of primitive construction. The oil produced, of course, varies in quality as well as in quantity, ten nuts producing one quart, or in other cases thirty nuts only three pints. In other places the ground nuts are pressed, and sometimes boiled. The best oil is used either for cooking purposes, or to anoint the body either before or after bathing,—a most grateful process in a hot dry climate; and the poorer qualities supply the lamps. Torches are often made of elephant's dung bound into cylinders by the ribs of the leaflets, and saturated with the oil.

Borassus Sechellensis, the Double Cocoanut. This was long regarded as a most valuable medicinal charm,—a sure remedy for sterility either of man or beast; but its reputation has much diminished. It differs from the ordinary cocoanut in having two distinct lobes, connected at the upper end so as to form a continuous cavity. The milk and meat are not so good as the common nut, and more resemble the contents of the Palmyra nut, so common in India and elsewhere.

Phoenix dactylifera, Date. The leaves are shaped like those of the cocoanut, but are stiffer and of a lighter color. The lower portion of the stalk remains attached to the stem long after the leaf has withered, making it rough and admirably adapted for harboring small snakes, centipedes, or the more agreeable parasites of the vegetable world. The male blossoms are exceedingly numerous, eleven thousand having been counted on a single spadix, and yet to obtain a full crop of fruit artificial impregnation is necessary. The hard

woody spathe is not deciduous, and adds to the untrim appearance of the tree. In Egypt the fruit clusters are often of a hundred pounds weight, and hang down from stems as large as a man's wrist. The yellow dates are the smallest, and the black ones the largest in some places, but there is a variety of yellow dates three inches long. The cluster does not all ripen at once, but each date that matures is at once removed to make room for the rest. Dried, they form the chief food for the Arabs, and are much liked by all who are able to get them. The crushed and dirty dates that come to our markets are very inferior.

The date tree is not so long lived as the cocoanut, and its uses are by no means so extensive. The wood is soft, the blades of the leaves hard and narrow, and of course the coir and oil are wanting, and yet the fruit is perhaps the most delicious produced by any palm.

THE CYNTHIA SILK-WORM.

BY W. V. ANDREWS.

It is not at all a creditable circumstance to us, as an enterprising people, that so little has hitherto been done towards making silk-culture a source of national wealth. Thirty years ago, according to Mr. d'Homergues' account, some spasmodic efforts were made in this direction; but, for some cause, chiefly I imagine from the absence of skilled labor, the thing came to naught. In Connecticut, principally in the counties of Windham and Tolland, sewing-silk was manufactured to some extent; but even there the "hands" persisted in reeling the silk after the fashion of their grandmothers, and were far too knowing, and shrewd, to allow themselves to be taught anything by outsiders, who, probably under the cloak of a desire to communicate know-